

Properties of Explosives

Explosive	VOD	Density	%OB	Formula	Notes
Acetone peroxide	5290	1.2	-159	C ₉ H ₁₈ O ₆	
Amatol 40/60	7440	1.59			
Amatol 50/50	6430	1.55			Cast
Amatol 60/40	5760	1.5			
Amatol 80/20	5100	1.5			Cast
Ammonal	6230				
Ammonal	4580				English service
Ammonal T	6871	1.59			
Ammon-carbonite	3380	1.06			
Ammonit 1	3600	1			
Ammonium nitrate	2460		+20.0	NH ₄ NO ₃	Lead tube
Ammonium nitrate	2500	1.4	+20.0	NH ₄ NO ₃	Liquid
Ammonium nitrate/sulphate 60/40	2430	0.9			
Ammonium perchlorate	3800		+34.0	NH ₄ ClO ₄	
Ammonium picrate (Explosive D)	7150	1.6		C ₆ H ₂ (NO ₂) ₃ ONH ₄	
APEX 220/329	5800	1.25			
Baratol 90/10	5900	1.65			
Baronal	5450	2.32			
Blackpowder	400	1.6			
BTF	8490	1.86			
Carbonite	2440	1.46			
Carbonit I	3042				
Carbonit II	2472				
Cheddite 02	4020	1.04			
Cheddite 60bis 01	2901	1.17			
Cheddite 60M	3000	1.3			
Cheditte No. 2	2365	1			
Chloratit No. 2	4000	1.5			
Chloratit No. 3	2700	1.7			92% KClO ₃
Chloratit No. 3	3500	1.4			90% KClO ₃
Chlorotrinitrobenzene	6800	1.66			
Composition A3	8470	1.64			
Composition A-3	8100	1.59			

Composition B	7800	1.65				
Composition B-3	7890	1.72				Cast
Composition C-2	7660	1.57				
Composition C-3	7630	1.6				
Composition C4	8370	1.66				
Composition C-4	8040	1.59				
Cyanuric triazide	5600	1.15				
Cyanuric triazide	5500	1.02				
Cyanuric triazide	7500	1.54				
Cyclotetramethylene tetranitramine (Octogen, HMX)	9100	1.9	-21.6	C ₄ H ₈ N ₈ O ₈		
Cyclitol 60/40	7900	1.72				
Cyclitol 65/35	7975	1.72				Cast
Cyclitol 70/30	8060	1.73				
Cyclitol 75/25	8035	1.7				Cast
Cyclitol 75/25	7938	1.71				Cast
Cyclitol 75/25	8300	1.76				
Cyclotrimethylene trinitrosamine	7300	1.42				
Cyclotrimethylenetrinitramine (RDX, cyclonite)	8180	1.65	-21.6	C ₃ H ₆ N ₆ O ₆		
Cyclotrimethylenetrinitramine (RDX, cyclonite)	8700	1.77	-21.6	C ₃ H ₆ N ₆ O ₆		
Cyclotrimethylene trinitrosamine	7300	1.49				
DATB	7520	1.79				
DBX	6600	1.65				
DEGN	6760	1.38				
Diamino-2,4,6-trinitrobenzene [1,3-]	7500	1.65				
Diazodinitrophenol	6900	1.6				Presssed
Diazodinitrophenol (DDNP)	6600	1.5				
Diethyleneglycol dinitrate	6600	1.38				
Diethyleneglycol dinitrate (liquid)	6760	1.38				
Dinitrobenzene	6100	1.56		C ₆ H ₄ (NO ₂) ₂		
Dinitrodimethyloxamide	7100	1.48				
Dinitropropyl flumarate [Bis(2,2-)]	6050	1.49				
Dintriophenoxyethylnitrate	6800	1.58				
Dintroglycolorile (Dingu)	7580	1.75				
Dintropropyl 1-4,4,4-trinitrobutyrate [2,2-]	7600	1.67				
Dioxyethylnitramine dinitrate (DINA)	7580	1.47				
DIPAM	7400	1.76				
Dipentaerythritol hexanitrate	7400	1.6				
Dipentaerythritol hexanitrate (DPENH)	7410	1.59				
Donarit	4020	1.1				

Donarite	4100	1.31				
Dynamite, Low Velocity Picatinny Arsenal	4397	0.9				
Dynamite, Medium Velocity Picatinny Arsenal	6600	1.1				
Dynamite 65% Gelatin	6500	1.55				
Dynamite Ammonia 20%	2360	1.3				Paper tube
Dynamite Ammonia 30%	2760	1.31				Paper tube
Dynamite Ammonia 40%	3180	1.28				
Dynamite Ammonia 50%	3580	1.26				Paper tube
Dynamite Ammonia 60%	5280	1.28				Paper tube
Dynamite Guhr (40% NG)	2310	1.24				
Dynamite Guhr (75% NG)	4990	1.24				
Dynamite Straight 20%	2790	1.36				Paper tube
Dynamite Straight 30%	3600	1.32				
Dynamite Straight 40%	4460	1.32				Paper tube
Dynamite Straight 50%	5100	1.32				
Dynamite Straight 60%	5580	1.3				Paper tube
Dynammon	3380	0.87				
Ednatol 60/40	7510	1.6				
EL-506A	7000	1.48				
EL-506C	7030	1.48				
Emulex 7500	6000	1.35				Emulsion slurry
Erythritol tetranitrate (ETN)	7650	1.6	+5.3	C ₄ H ₆ N ₄ O ₁₂		extrapolated VOD
Ethritol trinitrate	6440	1.48				
Ethyelene glycol di-trinitrobutyrate	7340	1.63				
Ethylenediamine dinitrate (Ph-Satz, EDD)	6800	1.53	-25.8			
Ethylene dinitramine (Haleite, EDNA)	7570	1.49				
Ethyl nitrate	5800	1.1				
Ethyl picrate (2,4,6-trinitrophenetol)	6500	1.55				
Explosive D	6850	1.55				
FEFO	7500	1.61				
Fivolute (2,2,5,5-Tetramethylolcyclopentanol)	5060	0.75				
Gelamite D	4000	1.3				
Geosit 3 (gelatinous)	6100	1.6				
Gesteins-Koronite T1	5000	1.57				
Gesteins-Koronite T2	4300	1.46				
Glycerol chloride dinitrate	6750	1.54				
Grisounite N3	3800	1.38				

Guanidine nitrate	3700			CH6N4O3	
Guanidine perchlorate	7150	1.67			
Guanidine perchlorate	6000	1.15			
Guanidine picrate	6500				
H-6	7191	1.71			
H-6	7900	1.75			
HBX-1	7224	1.69			
HBX-3	6917	1.81			
Hexamethylenetetraamine dinitrate (HDN)	6000		-78	C ₆ H ₁₄ N ₆ O ₆	
Hexamethylenetriperoxide diamine (HMTD)	4500	1.57			
Hexanitrobenzene (HNB)	9500	2.01			
Hexanitrodiphenylamine [2,4,6,2',4',6'-]	7200	1.6			
Hexanitrodiphenyl oxide [2,4,6,2',4',6'-]	7180	1.65			
Hexanitrodiphenylsulfide (Hexite)	7000	1.61			
Hexanitroethane (HNE)	4950	0.91		C6H6N2O2	
Hexanitrohexaazaisowurtzitane (HNIW, CL-20)	10000	2.05			
Hexanitrohexaazaisowurtzitane (HNIW, CL-20)	9380	1.98			
Hexitol	7800	1.7			
HNAB	7311	1.6			Pressed
HNS I (Hexanitrodiphenylethylene)	6800	1.6			
HNS II	7000	1.7			
HTA-3	7866	1.9			
Hydrazine nitrate	8690	1.6			
Hydromite 1000/1300	5500	1.25			
Hydromite 1000/1500	5500	1.25			Slurry
Ireflo 402	6900	1.43			
Iremit Emulsion 102	5900	1.18			
Iresplit E	4400	1.12			
Isocoal E-5	4500	1.1			
Isopropyl nitrate	5070	1.04		C3H7NO3	
Isosorbitol dinitrate	5300	1.08			
Lead azide	5300	4.6	-5.5	Pb(N ₃) ₂	
Lead styphnate	5200	2.9		PbC ₆ H(NO ₂) ₃ O ₂	
LOX / Carbon	6435				Cardboard tube
LOX / Cork-Meal	3315				Iron tube
LOX / Soot	4360				
LOX / Wood-Meal	3345				Iron tube

LX-01	6840	1.24				
LX-02	7370	1.44				
LX-04	8540	1.87				
LX-07-2	8640	1.87				
LX-08	6560	1.42				
LX-09-1	8810	1.84				
LX-10-1	8850	1.87				
LX-11	8320	1.87				
LX-14-0	8830	1.84				
LX-15	6850	1.58				
LX-17-0	7630	1.91				
Mannitol hexanitrate (MHN)	8260	1.73	+7.1	C ₆ H ₈ N ₆ O ₁₈		
Marcarite	4700	3.86				
MEN-II	5490	1.02				
Mercury fulminate	5000	4.00	-11.2	Hg(ONC) ₂		
Metadinitrobenzene	6100	1.47				
Methylamine nitrate	6600	1.42	- 34.0			
Methyl nitrate	6300	1.22		CH ₃ NO ₃		
Minol	6000	1.7				
Minol-2	5820	1.68				
Monachite	3995	1.02				
N2O2/NBz 70/30	8100	1.39				
Nitrocellulose	4492	0.69				Smokeless powder
Nitrocellulose (13.45% N)	7300	1.2	-24.3	C ₆ H ₇ N ₃ O ₁₁		Gun cotton
Nitrogen sulphide	5190	1.6		N ₄ S ₄		
Nitrogen tetroxide/Nitromethene 69.8/30.2	8000					
Nitrogen tetroxide/Toluene 81.8/18.2	8100	1.36				
Nitroglycerine	7700	1.6	+3.5			Liquid
Nitroglycerine	8100	1.74	+3.5			Frozen
Nitroglycol	8250					
Nitroglycol (glycol dinitrate)	7300	1.48				Liquid
Nitroguanidine	8200					
Nitroisobutyglycerol trinitrate (NIBTN)	7860	1.64				
Nitromethane	6290	1.14	-39	CH ₃ NO ₂		
Nitro starch	5500	1.35				
NQ	7930	1.62				
Octol 70/30	8377	1.8				
Octol 75/25	8643	1.81				
Oxamide dinitrate [N,N'-dinitro-N,N' bis (2-hydroxyethyl)]	5530	1				

PBX-9007	8090	1.64				
PBX-9010	8370	1.78				
PBX-9502	8170	1.67				
Pelonit D	3500					Powder
Pentaerythritol tetranitrate (PETN)	8400	1.7	-10.1			
pentanitrophenyl azide	9210	1.88				
Pentolite 50/50	7465	1.66				
Permonite	3780	1.13				
Phenobel	2000	1.25				
Picratol 52/48	6970	1.63				
Picric acid	7350	1.71	-45.4			Cast
PIPE	7075	1.37				
Plastrotyl	5520	1.33				
Plumbatol	4850	2.89				
PLX	6210	1.14				Liquid
Polyvinyl nitrate	7000	1.5				
PTX-1	7655	1.64				
PTX-2	8065	1.7				
PVA-4	7910	1.6				
Pyroxylin	3800	0.52				
RIPE	7390	1.37				
Silver azide	6800	5.1				
Silver fulminate					AgCNO	
Sixonite	5050	4				
Sodatol 50/50	4100	1				
Sulfone (2,4,6,2',4',6'-Heanitrodipenyl-)	5210					
Tacot	7250	1.64				
TATB	7760	1.88				
TeNME/Toluene 86.5/13.5	9300	1.46	+39.4			
Tetraazanonane [1,9-Dinitroxy-2,4,6,8-tetranitro-2,4,6,8,-]	7305	1.27				
Tetracene	1500	1.65		C2H8N10O		
Tetramethylolcyclopentanone tetranitrate	7040	1.55				
Tetramethylolcyclopentanone tetranitrate [2,2,5,5-]	7592	1.57				
Tetranitroglycolurile (Sorguyl)	9150	1.95				
Tetranitromethane	6360	1.64	+72.7	CN ₄ O ₈		
Tetranitromethylaniline (Tetryl)	7850	1.71		C7H5N5O8		
Tetrytol 65/35	7310	1.6				
Tetrytol 70/30	7340	1.6				
Tetrytol 75/25	7385	1.6				

Thunderite	3650	1.07				
TMETN	7050	1.47				
Torpex	7495	1.81				
Triamino-2,4,6-trinitrobenzene [1,3,5-]	7500	1.8				
Triamino-2,4,6-trinitrobenzene [1,3,5-]	7350	1.8				
Triaminoguanidine nitrate	5300	0.95		CH8N6		
Trimonite	7020	1.6				
Trinitroaniline	7300	1.72				
Trinitroanisole	6800	1.57				
Trinitrobenzene [1,4,5-]	7300	1.71		C6H3N3O6		
Trinitrocresol [2,4,6-]	6850	1.62				
Trinitrochlorobenzene (Picryl chloride)	7200	1.74				
Trinitroethyl-4,4,4-trinitrobutyrate [2,2,2-]	8290	1.75				
Trinitroethyl-4,4,4-trinitrobutyrate [2,2,2-]	7760	1.6				
Trinitronaphthalene	6000					
Trinitrophenoxethyl nitrate	7600	1.65				
Trinitropyridine	7470	1.66				
Trinitropyridine-N-oxide	7770	1.72				
Trinitrotoluene (TNT)	6900	1.6	-73.9	C7H5N3O6		
Trinitroxylene	6600	1.51				
Tripentaerythritol octanitrate (TPEON)	7650	1.56				
Triplastite	5030	1.45				
Tritonal 80/20	6440	1.48				
Urea nitrate	3400	0.85				
Urea nitrate	4700	1.2				
Veltex No. 448	8500					
Westfalite	4350	1.01				
Wetterdetonit	3150	1				
Wetter-Nobelite A	4200					
Wetter-Nobelite B	4880					
Wetter-Nobelite C	3050					
XTX-8003	7300	1.53				
XTX-8004	7220	1.55				

Common Liquid Fuels and Oxidizers

Fuel	formula	% OB	Oxidizer	formula	% OB
Xylene	C ₈ H ₁₀	-316.5	Liquid Oxygen	O ₂	+100
Toluene	C ₇ H ₈	-220.4	Nitric Acid	HNO ₃	+63.5
Benzine	C ₆ H ₆	-307.3	Hydrogen Peroxide	H ₂ O ₂	+47.0
Hexane	C ₆ H ₁₄	-352.8	Manganese Heptoxide	Mn ₂ O ₇	+21.6
Acetone	C ₃ H ₆ O	-220.4			
MEK	C ₄ H ₈ O	-244.1			
Methanol	CH ₄ O	-149.8			
Ethanol	C ₂ H ₆ O	-208.4			

